

```

p: tac
AAATGAGCTG TTGACAATTA ATCATCGGCT CGTATAATGT GTGGAATTGT GAGCGGATAA
EcoRI SacI KpnISmaI
CAATTTTACA CAGGAAACAG AATTCGAGCT CGGTACCCGG GCTACATGGA GATTAACTCA
RBS | -> α-globin
ATCTAGAGGG TATTAATAAT GTATCGCTTA AATAAGGAGG AATAACATAT GGTGCTGTCT
CCTGCCGACA AGACCAACGT CAAGGCCGCC TGGGGTAAGG TCGGCGCGCA CGCTGGCGAG
TATGGTGCGG AGGCCCTGGA GAGGATGTTC CTGTCCTTCC CCACCACCAA GACCTACTTC
CCGCACTTCG ATCTGAGCCA CGGCTCTGCC CAGGTTAAGG GCCACGGCAA GAAGGTGGCC
GACGCGCTGA CCAACGCCGT GGCGCACGTG GACGACATGC CCAACGCGCT GTCCGCCCTG
AGCGACCTGC ACGCGCACAA GCTTCGGGTG GACCCGGTCA ACTTCAAGCT CCTAAGCCAC
TGCCTGCTGG TGACCCTGGC CGCCCACCTC CCCGCCGAGT TCACCCCTGC GGTGCACGCC
TCCCTGGACA AGTTCCTGGC TTCTGTGAGC ACCGTGCTGA CCTCCAAATA CCGTTAAACT
RBS | -> β-globin
AGAGGGTATT AATAATGTAT CGCTTAAATA AGGAGGAATA ACATATGGTG CACCTGACTC
CTGAGGAGAA GTCTGCCGTT ACTGCCCTGT GGGGCAAGGT GAACGTGGAT GAAGTTGGTG
GTGAGGCCCT GGGCAGGCTG CTGGTGGTCT ACCCTTGGAC CCAGAGGTTC TTTGAGTCCT
TTGGGGATCT GTCCACTCCT GATGCTGTTA TGGGCAACCC TAAGGTGAAG GCTCATGGCA
AGAAAGTGCT CGGTGCCTTT AGTGATGGCC TGGCTCACCT GGACAACCTC AAGGGCACCT
TTGCCACACT GAGTGAGCTG CACTGTGACA AGCTGCACGT GGATCCTGAG AACTTCAGGC
β108Asn->Gln
TCCTGGGACA AGTACTGGTC TGTGTGCTGG CCCATCACTT TGGCAAAGAA TTCACCCAC
CAGTGCAGGC TGCCTATCAG AAAGTGGTGG CTGGTGTGGC TAATGCCCTG GCCCACAAGT
->| SphI rrB (5S, T1, T2)
ATCACTAAGC ATGCATCTGT TTTGGCGGAT GAGAGAAGAT TTTCAGCCTG ATACAGATTA
NsiI

```

FIG. 1A



FOOT-2998660

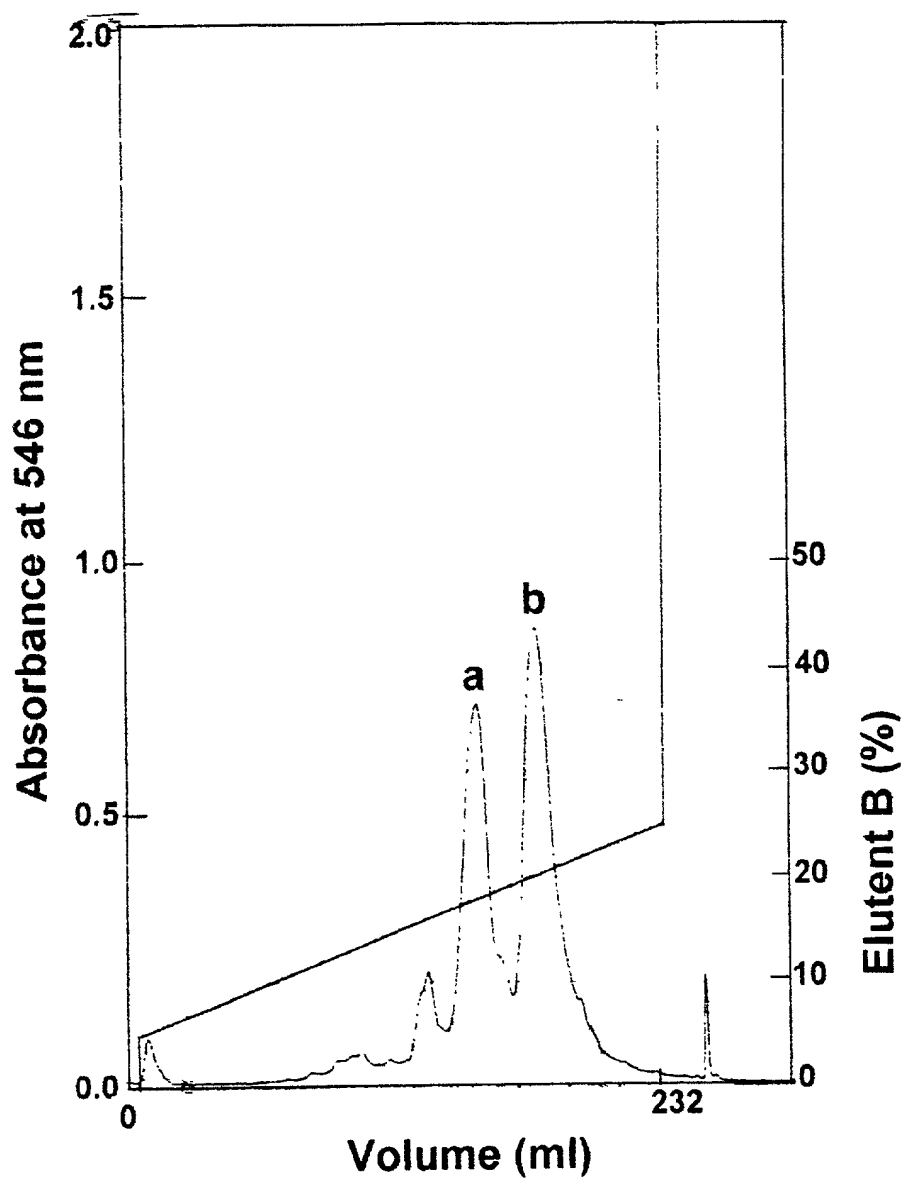


FIG. 2A

105011-29993650

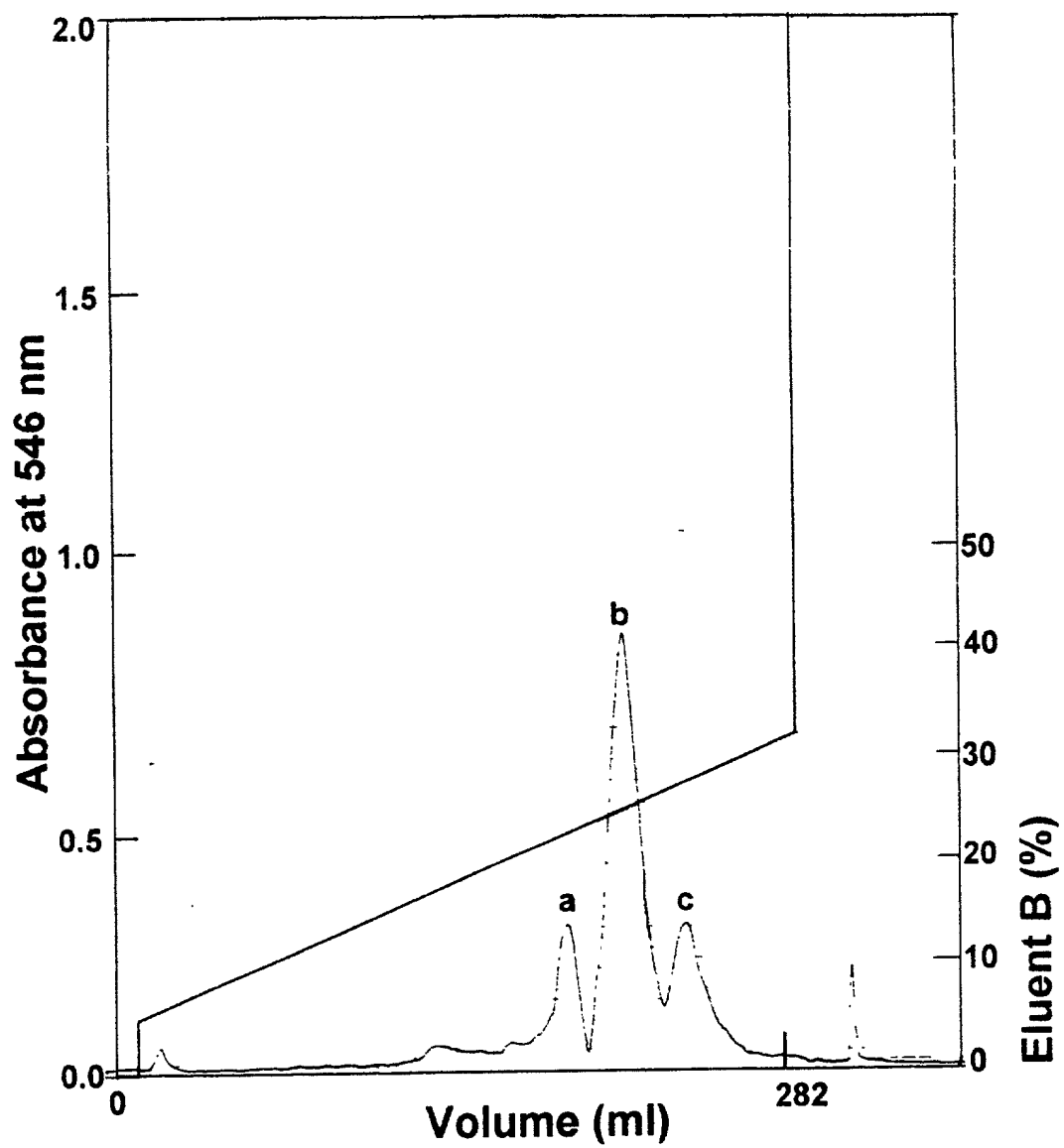


FIG. 2B

FIG. 3A

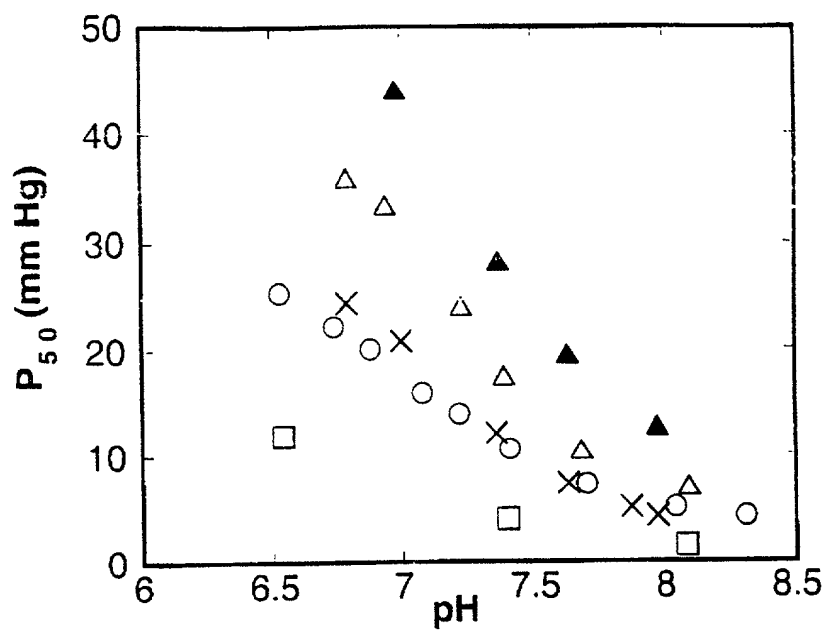
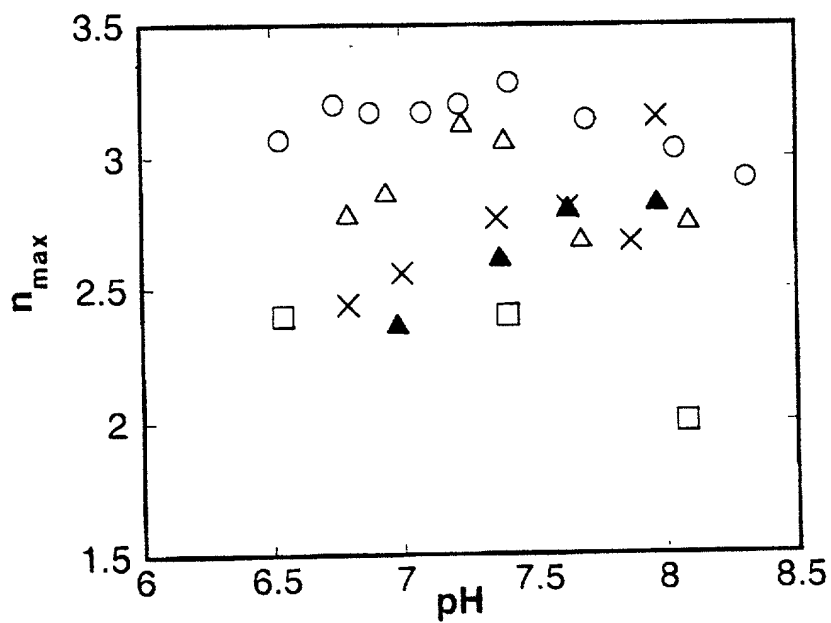


FIG. 3B



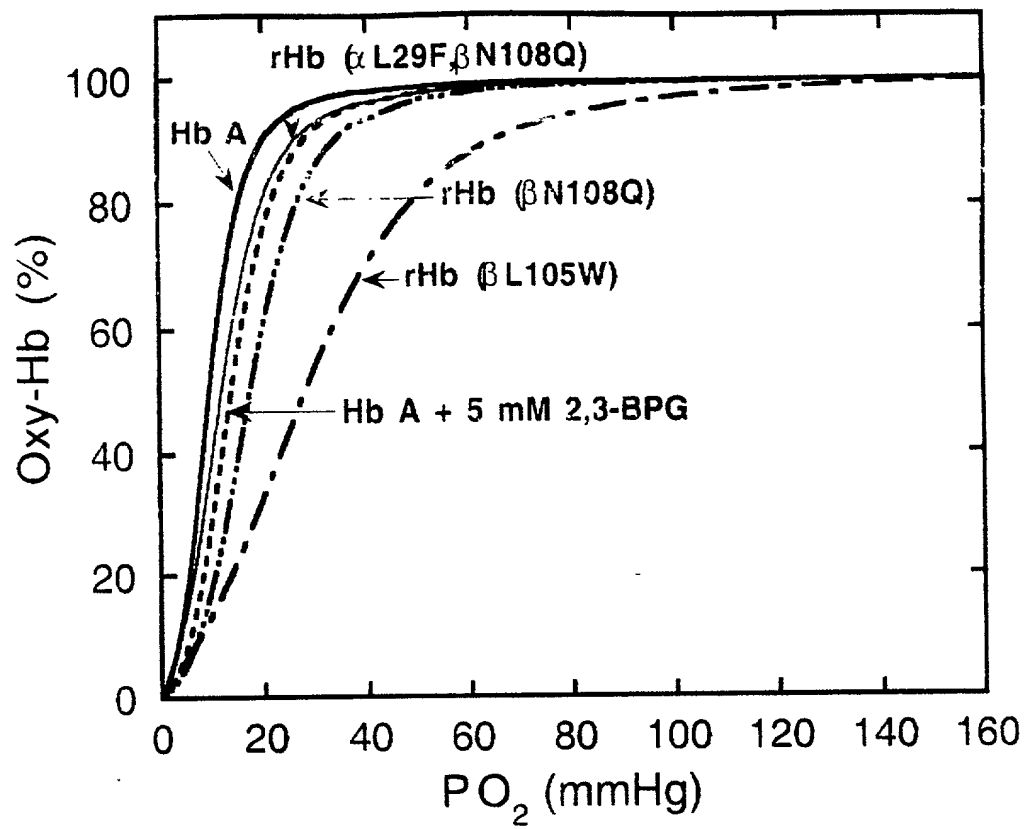


FIG. 4

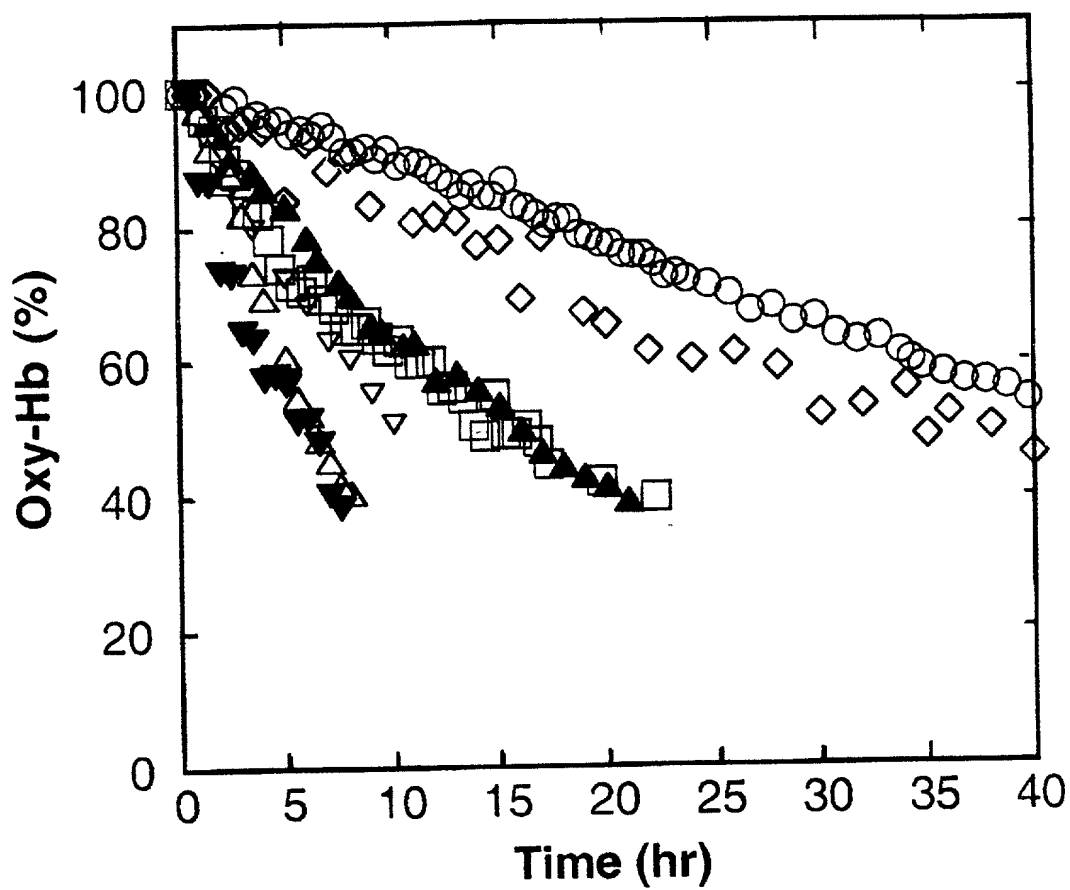


FIG. 5

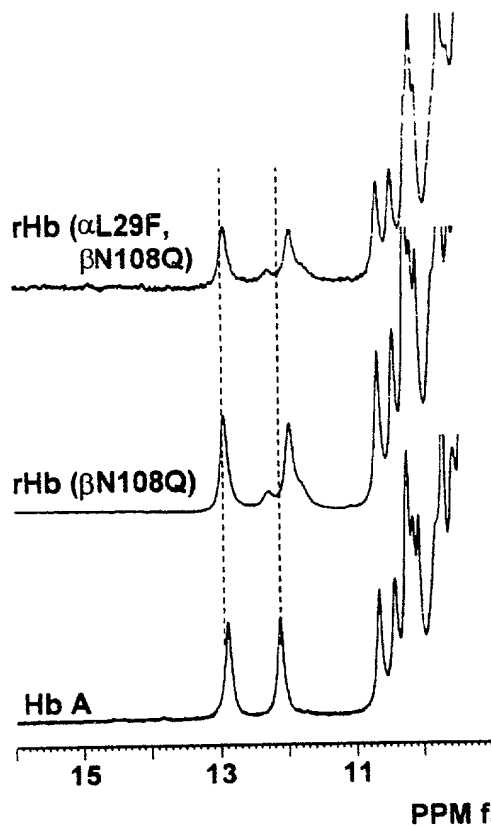


FIG. 6A

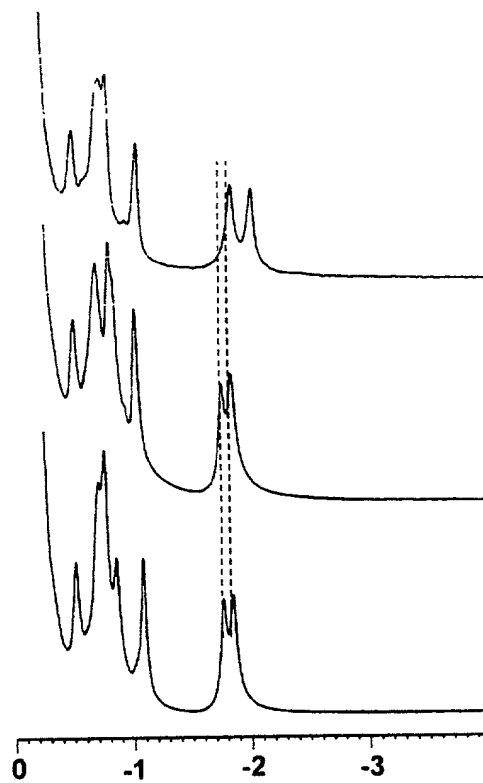


FIG. 6B



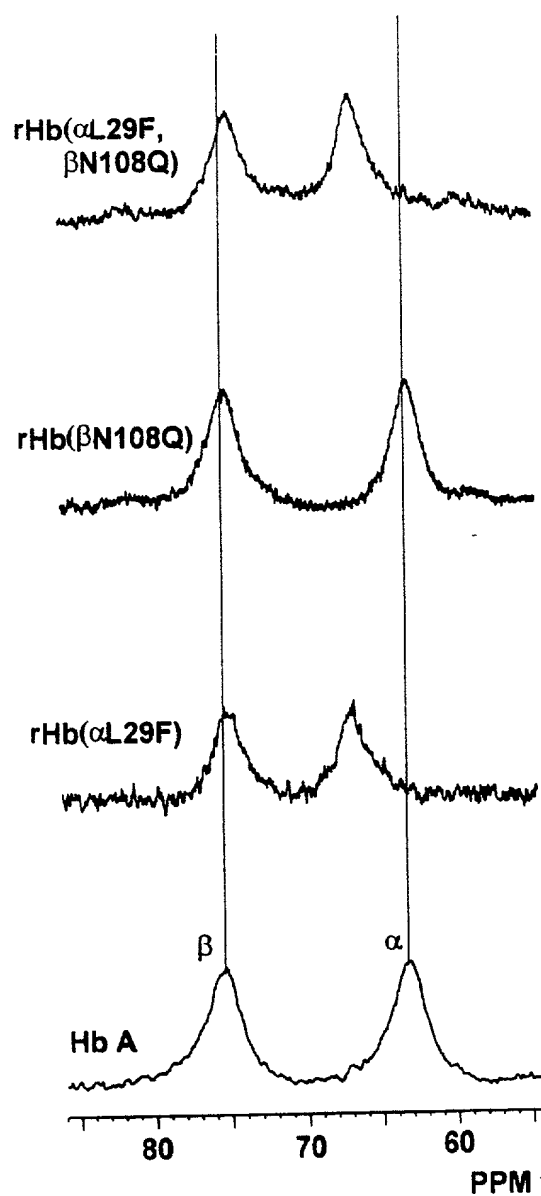


FIG. 7A

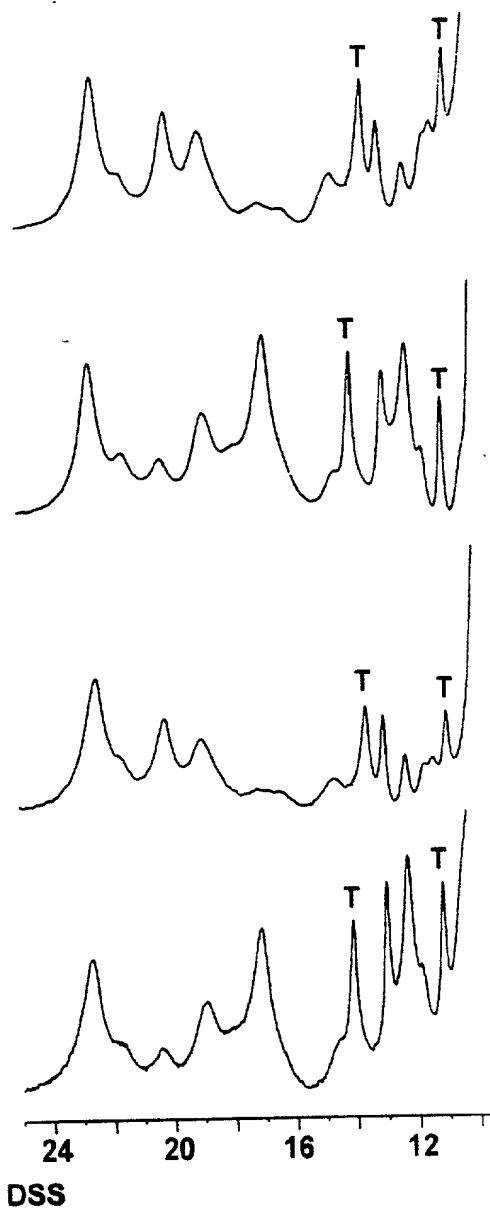


FIG. 7B

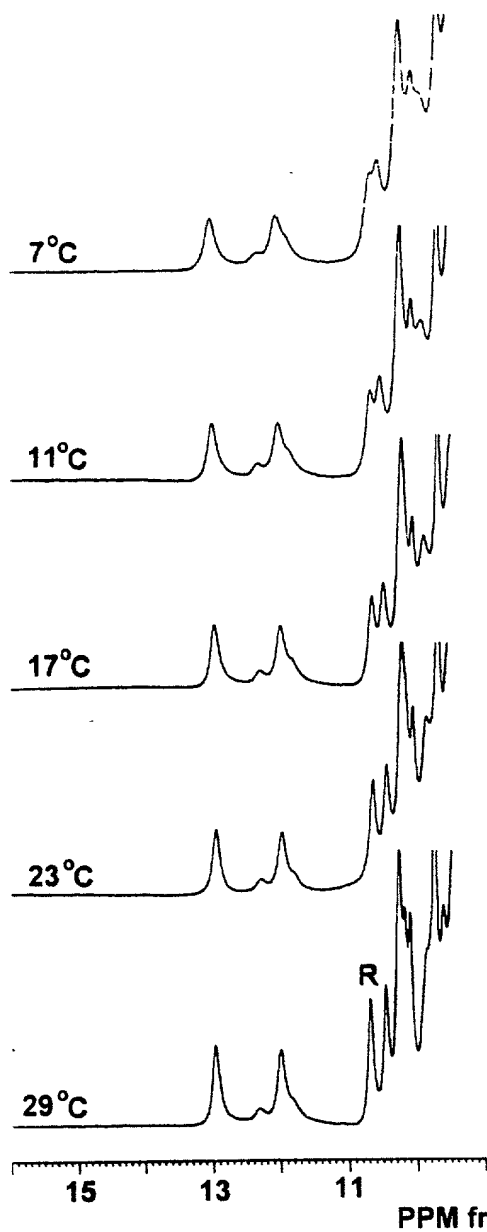


FIG. 8A

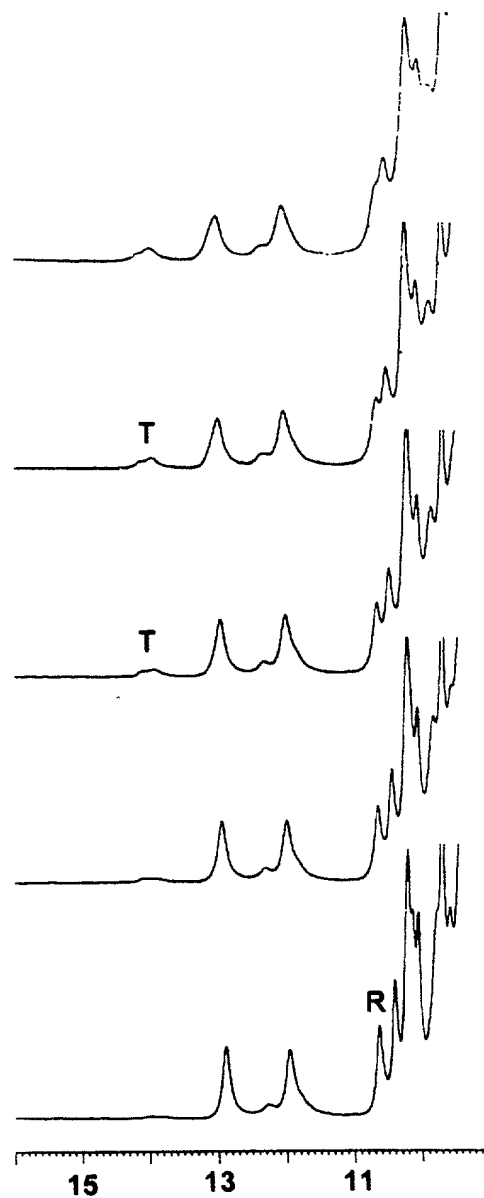


FIG. 8B

09986667-14001

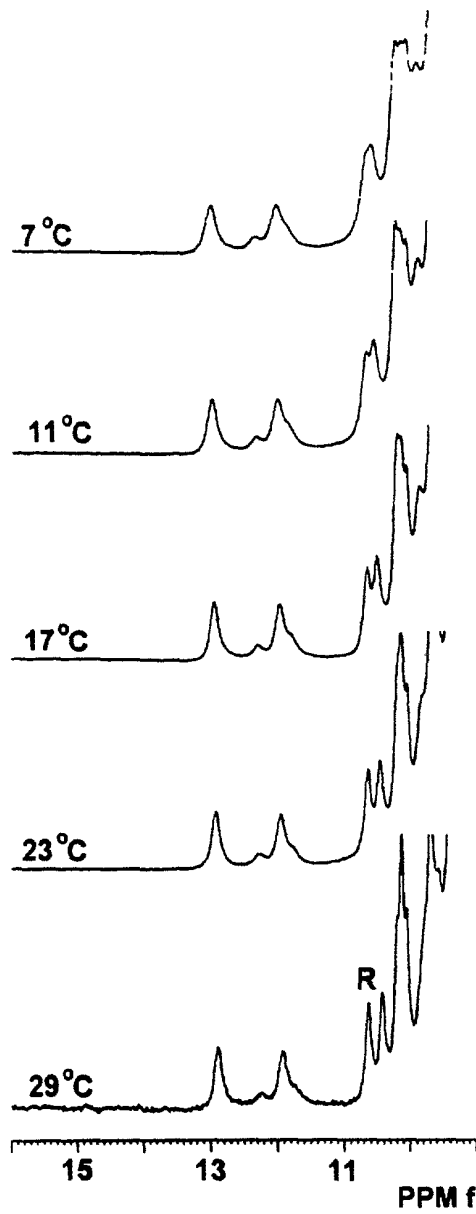


FIG. 9A

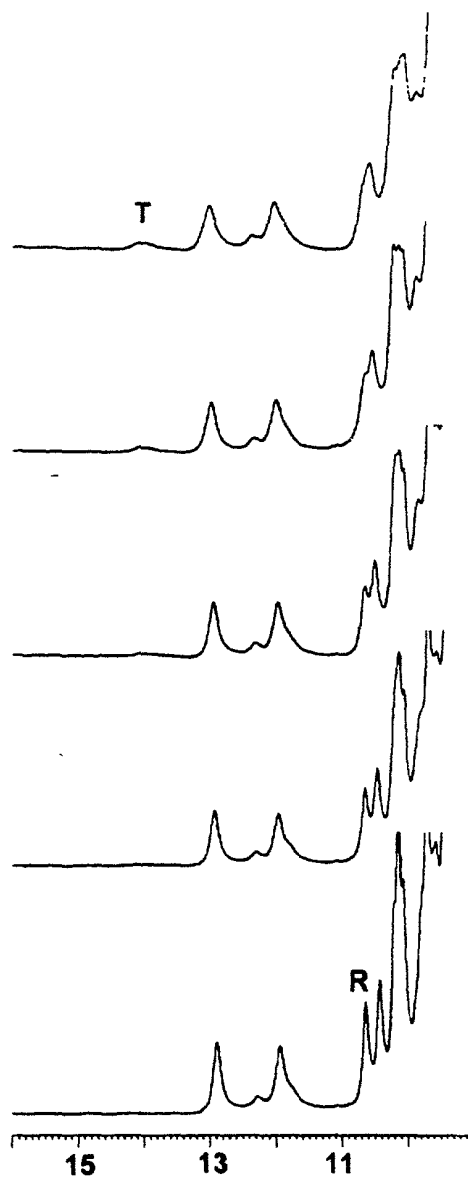


FIG. 9B

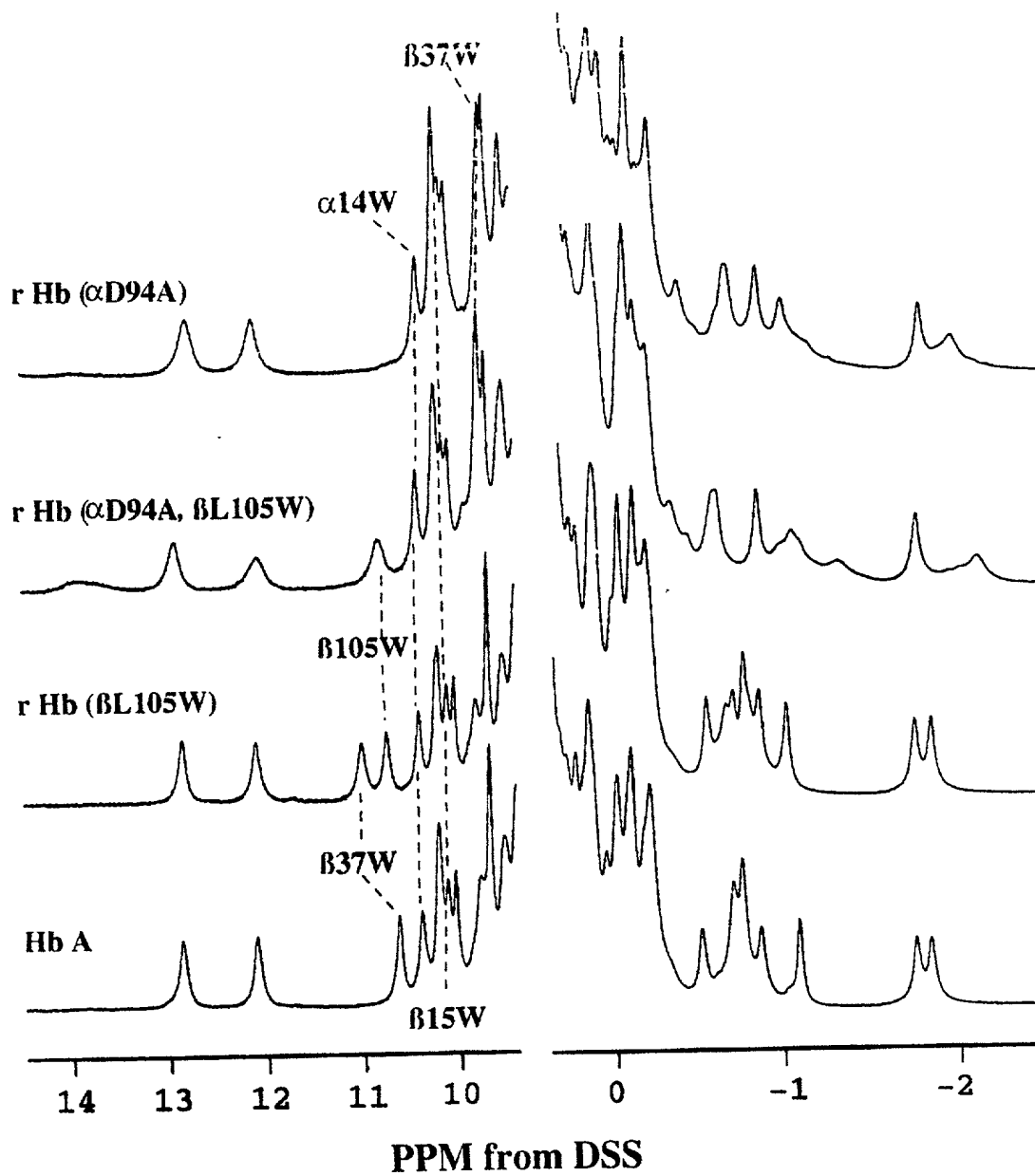


FIG. 10A

FIG. 10B

09985657-110901

FIG. 11A

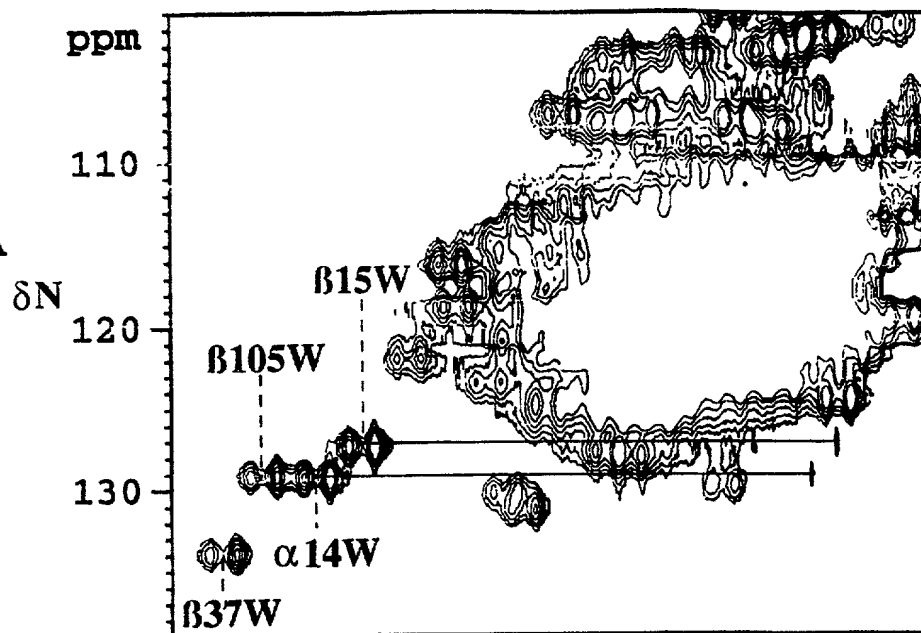


FIG. 11B

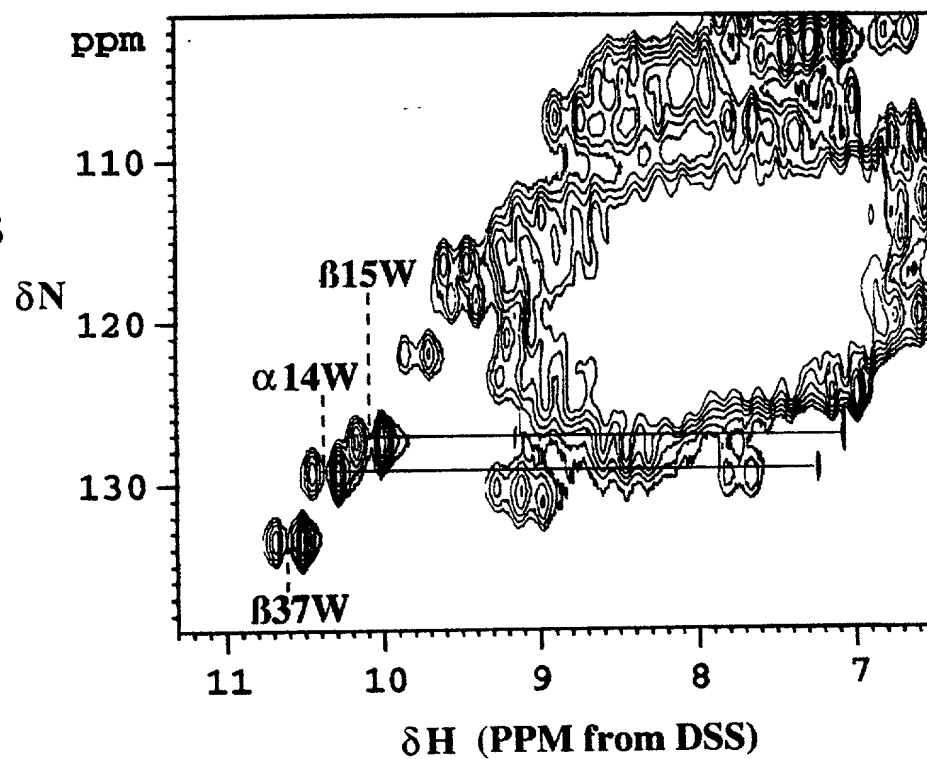


FIG. 12A

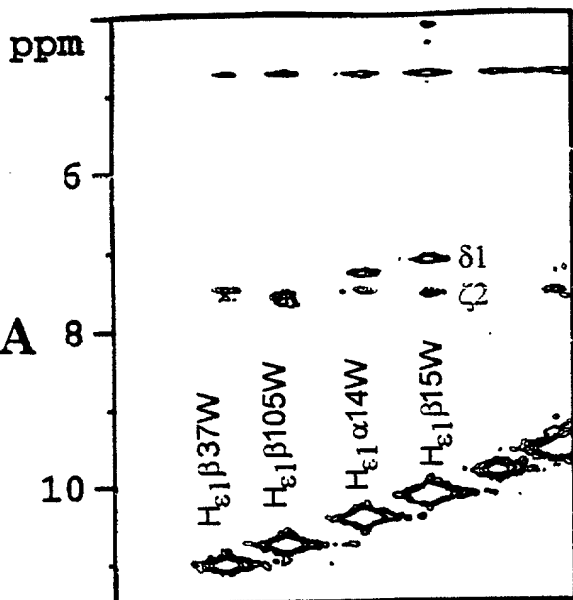


FIG. 12B

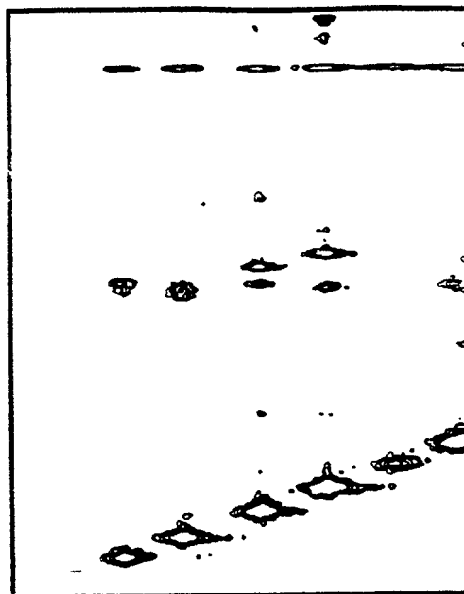


FIG. 12C

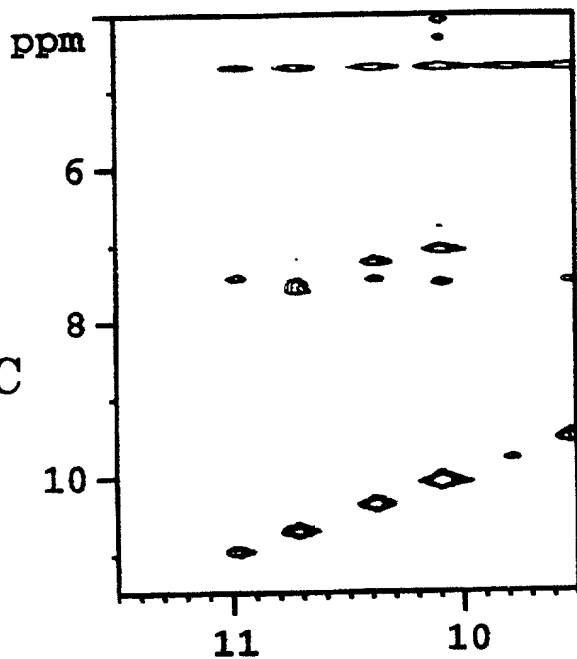
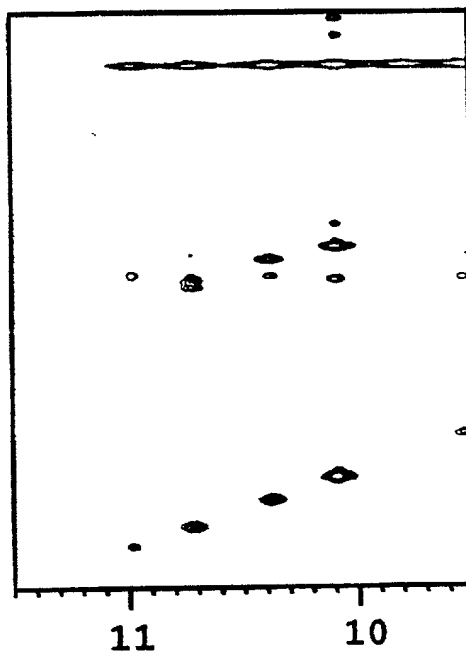


FIG. 12D



PPM from DSS

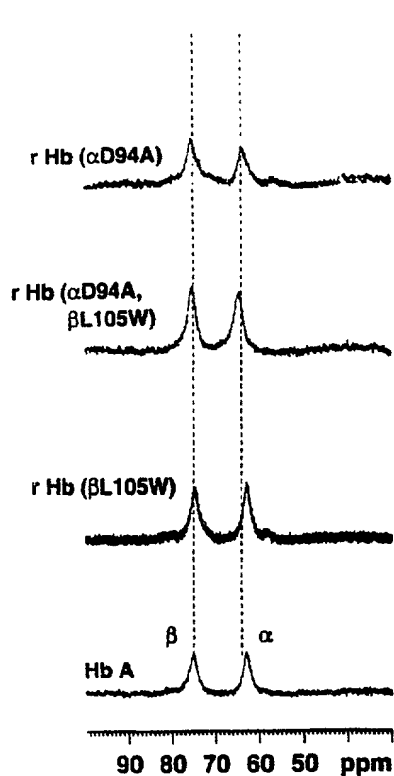


FIG. 13A

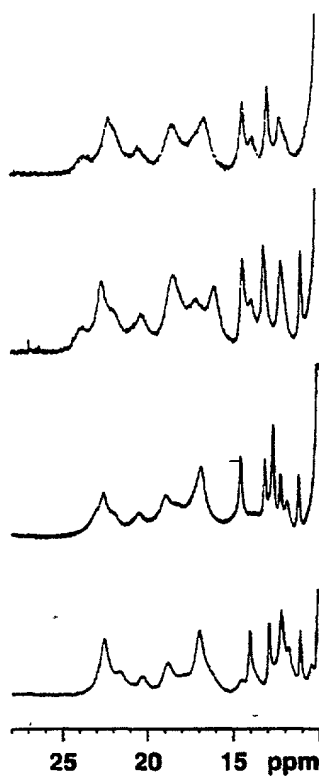


FIG. 13B

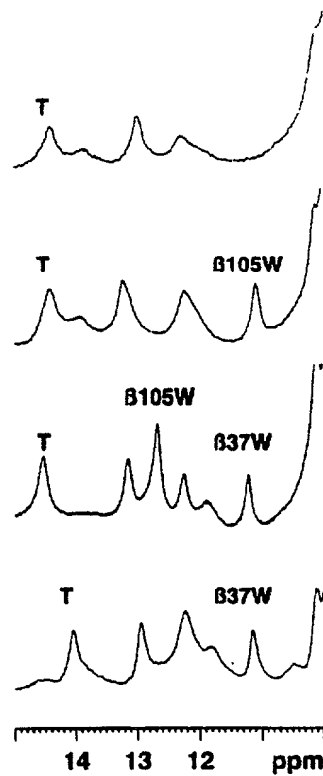


FIG. 13C

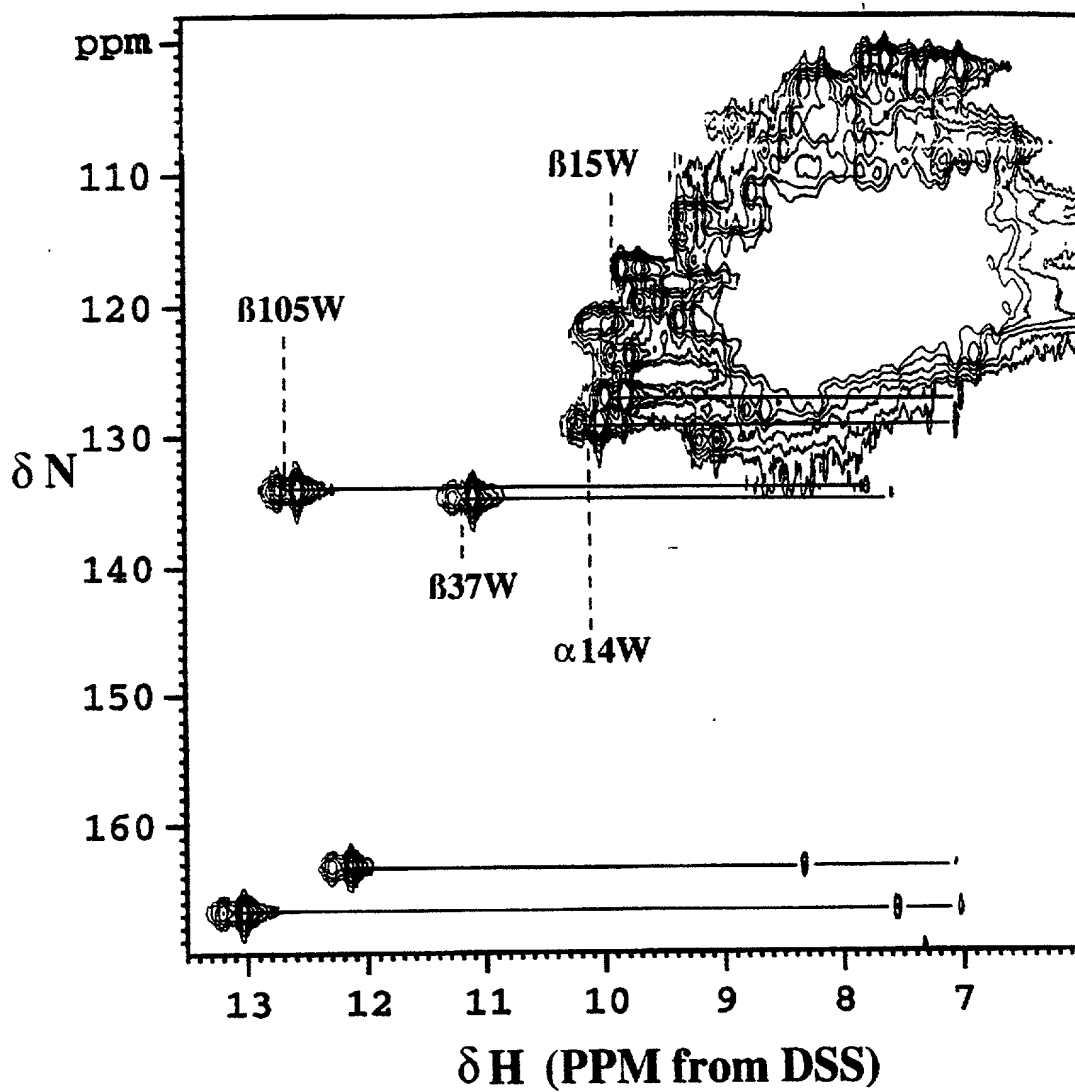


FIG. 14



FIG. 15A

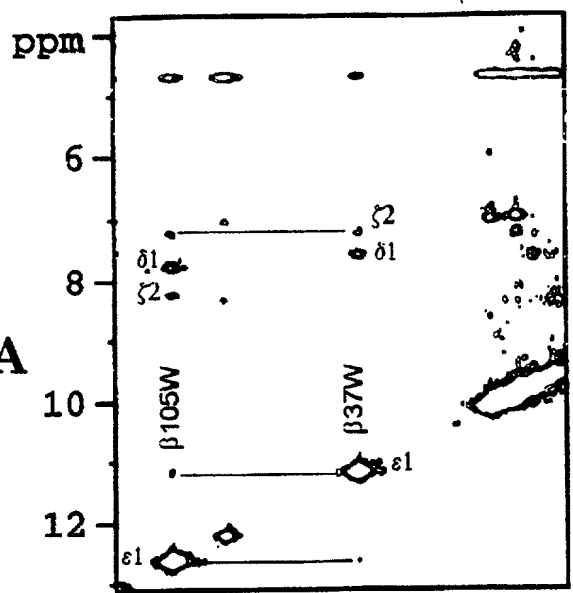


FIG. 15B

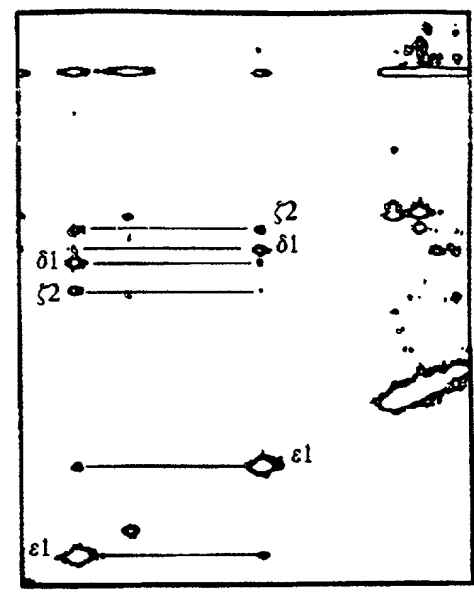


FIG. 15C

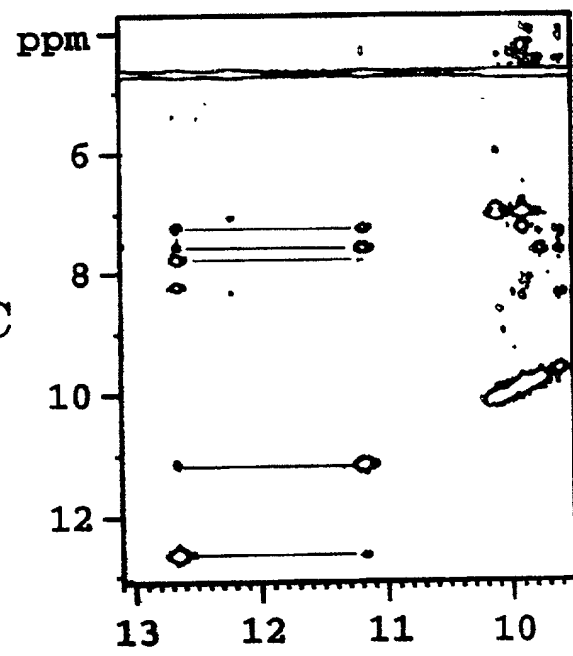
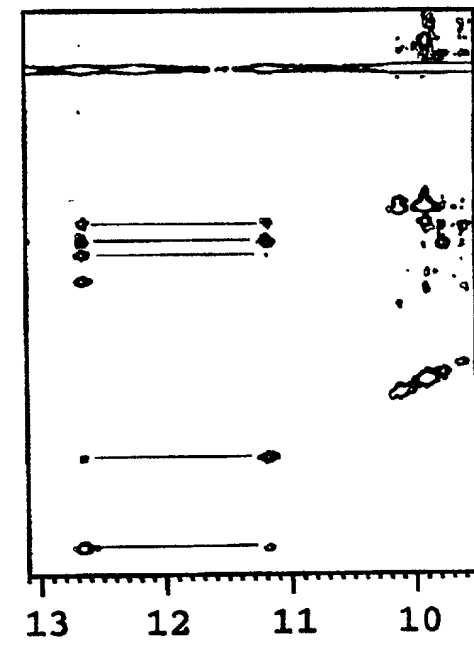


FIG. 15D



PPM from DSS

FIG. 16 A

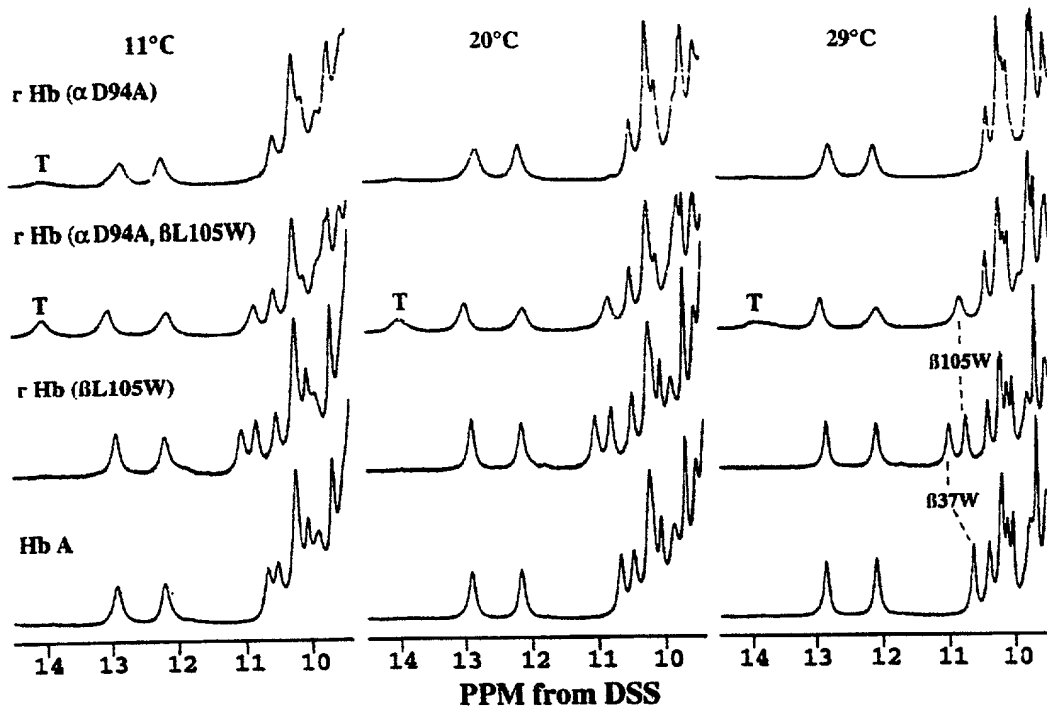


FIG. 16B

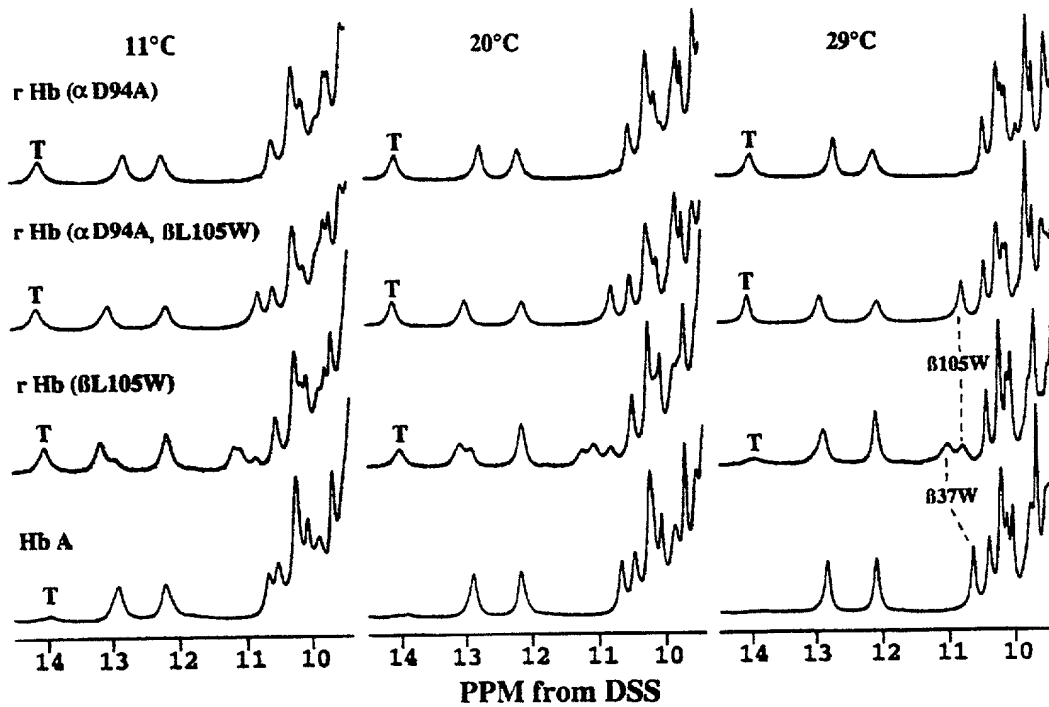


FIG. 17A

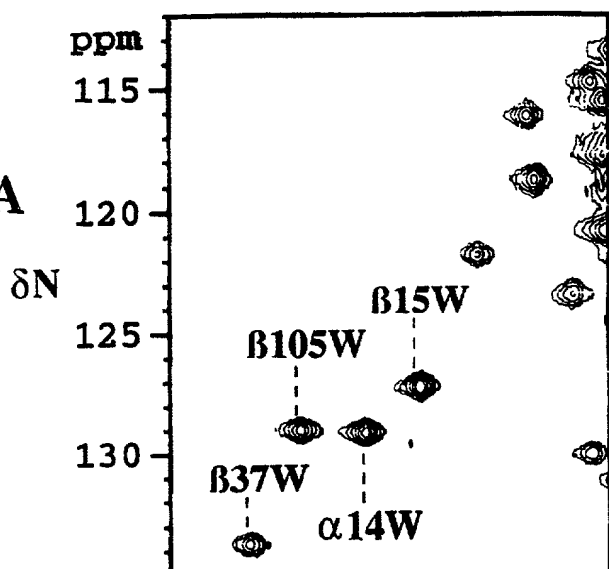


FIG. 17B

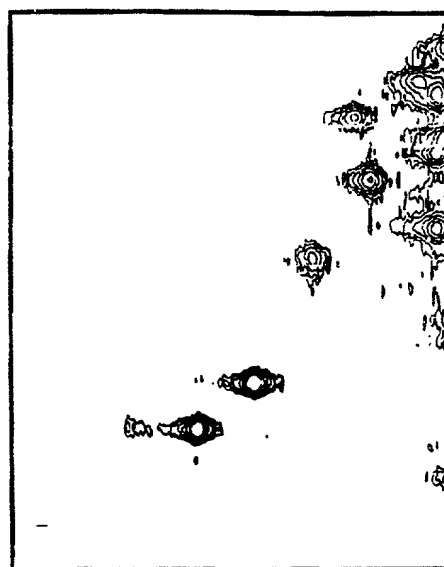


FIG. 17C

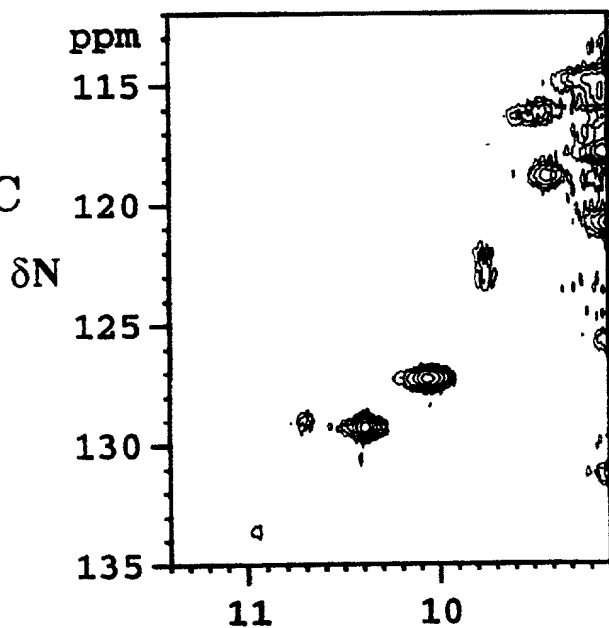
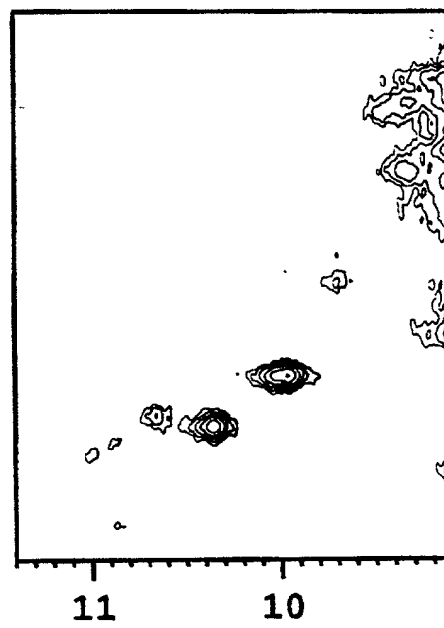


FIG 17D



δH (PPM from DSS)

099866-11001

FIG. 18A

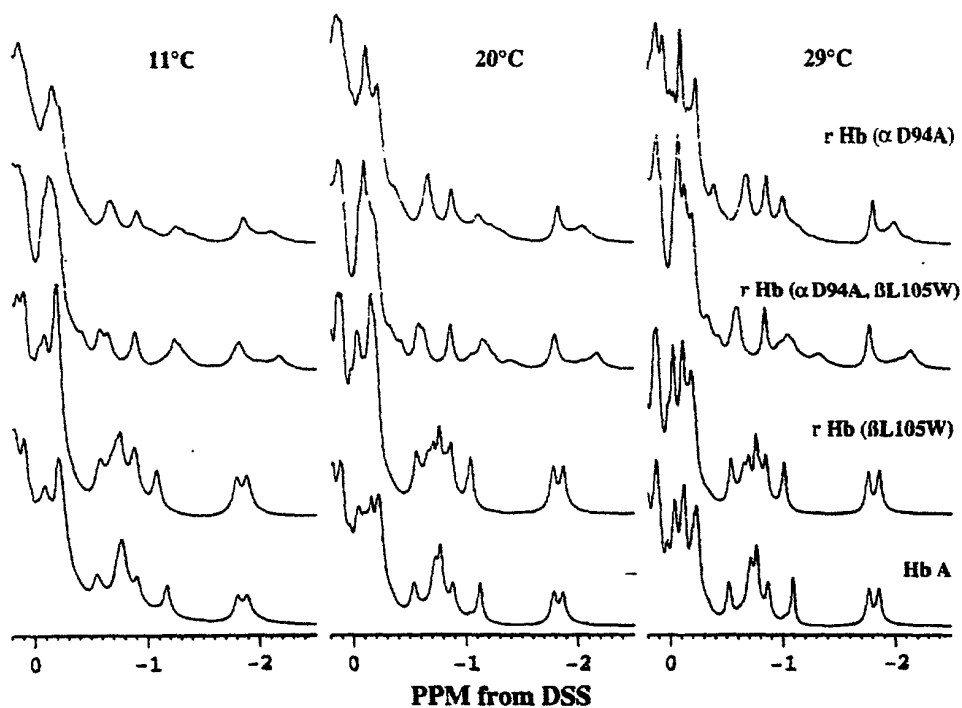


FIG. 18B

